

CLAIMS

What is claimed:

1. An electronic assembly comprising:
 - a substrate;
 - a support plate; and
 - a plurality of support members, each having a first portion attached to the substrate and second portion attached to the thermally conductive body, the support member being thermally separated from the support plate.
2. The electronic assembly of claim 1, further comprising an insulating body interconnecting the support plate and the support members.
3. The electronic assembly of claim 2, wherein the insulating body is formed on the support plate.
4. The electronic assembly of claim 3, wherein the insulating body is in a recess on the support plate.
5. The electronic assembly of claim 4, wherein the second portion of the support member is embedded in the insulating body.
6. The electronic assembly of claim 5, wherein the insulating body is at least one of a ceramic and a liquid crystal polymer.

7. The electronic assembly of claim 6, wherein the substrate is a circuit board.
8. The electronic assembly of claim 7, wherein the support plate is metal.
9. The electronic assembly of claim 8, wherein the support plate is a heat sink.
10. The electronic assembly of claim 9, further comprising a package substrate attached to the circuit board and a microelectronic die mounted on the package substrate, the heat sink being thermally connected to the microelectronic die.
11. The electronic assembly of claim 10, wherein the heat sink is on a side of the package substrate opposing the circuit board.
12. The electronic assembly of claim 11, wherein the package substrate includes a plurality of contact formations on a bottom surface thereof, the contact formations interconnecting the package substrate and the circuit board.
13. The electronic assembly of claim 12, wherein the microelectronic die is a microprocessor.
14. The electronic assembly of claim 13, further comprising a thermal interface material interconnecting the microelectronic die and the heat sink.

15. An electronic assembly comprising:

- a circuit board;
- a package substrate attached to the circuit board;
- a microelectronic die mounted to the package substrate;
- a thermally conductive plate thermally connected to the microelectronic die;
- a plurality of insulating bodies attached to the thermally conductive plate; and
- a plurality of support members having first and second portions, the first portions attached to the circuit board, the second portions attached to the insulating bodies.

16. The electronic assembly of claim 15, further comprising solder between the circuit board and the package substrate and between the circuit board and the support members and wherein the support members are thermally separated from the conductive plate such that when the circuit board is heated to a temperature to reflow the solder between the circuit board and the package substrate, a sufficient amount of heat remains in the support members to reflow the solder between the support members and the circuit board.

17. The electronic assembly of claim 16, wherein the support members are metal pins.

18. The electronic assembly of claim 17, wherein the metal pins are soldered to the circuit board.
19. The electronic assembly of claim 18, wherein the circuit board is a motherboard.
20. The electronic assembly of claim 19, wherein the microelectronic die is a microprocessor.
21. The electronic assembly of claim 20, wherein the thermally conductive plate is a heat sink.
22. The electronic assembly of claim 21, wherein the heat sink is over the package substrate.
23. The electronic assembly of claim 22, further comprising a thermal interface material interconnecting the heat sink and the microelectronic die.
24. A method for constructing an electronic assembly comprising:
 - interconnecting a thermally conductive plate and a support member with an insulating body; and
 - mounting the support member to a substrate to thermally connect the thermally conductive plate to a microelectronic die on the substrate.

25. The method of claim 24, further comprising forming the insulating body on the thermally conductive plate.
26. The method of claim 25, further comprising depositing wave solder between the support member and the circuit board.
27. The method of claim 26, further comprising heating the substrate, said heating attaching the solder to the substrate and the circuit board.
28. A method for constructing an electronic assembly comprising:
 - mounting a microelectronic die to a package substrate;
 - placing the package substrate on a circuit board;
 - placing a heat sink on the circuit board; and
 - heating the circuit board to attach both the package substrate and the heat sink to the circuit board substantially simultaneously and thermally connect the heat sink to the microelectronic die.
29. The method of claim 28, further comprising depositing solder between the circuit board and the package substrate and between the circuit board and the heat sink, said heating attaching the package substrate and the heat sink to the circuit board.
30. The method of claim 29, further comprising forming an insulating body on the heat sink to thermally separate the heat sink from the solder.